

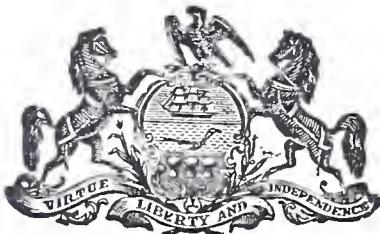
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# RECRUIT PSYCHOLOGICAL EXAMINATION

FOR

ILLITERATES AND NON-ENGLISH-SPEAKING  
CITIZENS AND ALIENS

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TO BE USED BY RECRUITING OFFICERS

AT

GENERAL RECRUITING STATIONS

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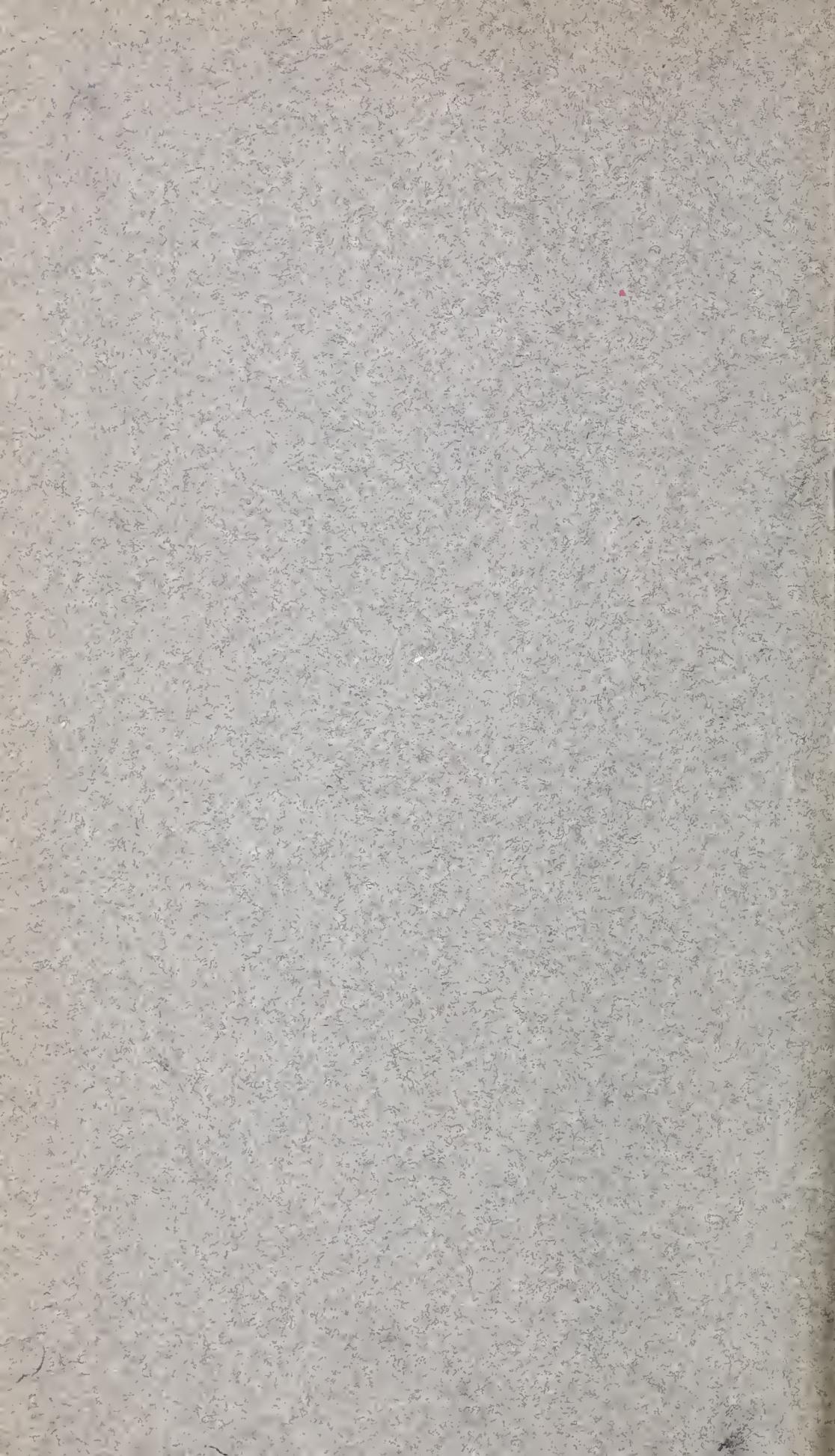
PREPARED IN THE OFFICE OF THE  
SURGEON GENERAL, U. S. ARMY

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October, 1919



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1919



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1919

WAR DEPARTMENT,  
WASHINGTON, *October 3, 1919.*

The following publication, entitled "Recruit Psychological Examination for Illiterates and Non-English-Speaking Citizens and Aliens," is published for the information and guidance of all concerned.

[702, A. G. O.]

BY ORDER OF THE SECRETARY OF WAR:

PEYTON C. MARCH,  
*General, Chief of Staff.*

OFFICIAL:

P. C. HARRIS,  
*The Adjutant General.*

## RECRUIT PSYCHOLOGICAL EXAMINATION.

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The preparation of the recruit psychological examination was undertaken in May, 1919, on receipt of the following letter from The Adjutant General:

Beginning May 1, 1919, recruiting agencies will accept for enlistment, illiterates and non-English-speaking citizens and aliens. In order that only men with sufficient intelligence to perform the duties of a private soldier may be accepted, it is desired that you prepare without delay a psychological test for applicants of the aforesaid class. This test should be "Esperanto" in character. It should be a simple test; one that can be applied by most anyone, and one that will determine whether or not an applicant possesses the necessary degree of intelligence to permit him, with proper training and thorough instruction in English, to carry on in the Army. As soon as completed, the test will be sent to this office, attention Operations Branch.

A survey of the demands underlying this letter at once indicated that the Section of Psychology had no simple task to perform. Here was a demand for a special method of detecting low-grade applicants for enlistment whose ignorance of English makes inapplicable the ordinary methods of estimating intelligence. Speaking a foreign tongue, these applicants cannot communicate directly with the examiner except by means of a sign language. It was necessary, therefore, to adopt a method of examination which would allow the candidate for enlistment opportunity for adequate self-expression and provide the examiner with a dependable measure of the examinee's reactions.

Furthermore, the examination should require of the examiner little or no technical ability. It should be prepared for use at recruiting stations to eliminate an inferior class of candidates before they are sent to recruit depots for enlistment after acceptance by professional boards. This requirement at once eliminated the possibility of using the psychological methods which had been previously developed for the Army. These methods had been prepared for the use of experts and specially trained examiners. They also presupposed a well-organized staff of specialists in both administrative and clinical phases of mental testing. Without the assistance of such a staff, the only available methods<sup>1</sup> would be quite unwieldy for a recruiting officer.

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<sup>1</sup> The Navy has reported success in using a short psychological examination. See article entitled "Mental Examinations for Recruits" by Lieut. L. E. Bisch, U. S. Naval Medical Bulletin, Vol. 13, No. 2, April, 1919. The examination described in this article requires fair language ability in the recruit, and a rather high degree of technical skill in the examiner.

The difficulty of meeting these requirements was further increased by the fundamental demand that the examination discriminate accurately between applicants having inadequate intelligence and those who have the capacity to carry on in the Army. It should reveal not only the men who are so dull that they would be utterly useless in the Army, but also those who lack sufficient adaptability for activities as various as would be required. It should also aid in the exclusion of those applicants whose learning ability is too limited to attain in a reasonable time (three months<sup>1</sup>) the ordinary literacy requirements for enlistment. Thus the demand is for an examination, not to furnish an intelligence classification or a scale, but to provide a simple and workable basis for a "yes" or "no" judgment concerning mental fitness for the Army.

On the basis of these general demands for a preliminary segregational procedure, the following specifications were adopted for guidance in the preparation of the recruit psychological examination:

- (1) It must be an individual examination, because recruiting officers deal with applicants individually.
- (2) It should be usable by anyone who can carry out simple directions.
- (3) Language requirements should be eliminated.
- (4) Neither complicated apparatus nor record blanks should be required.
- (5) An absolute judgment of the correctness of the examinee's reactions should be possible.

The examination was developed by selecting a number of tests which fulfilled the specifications enumerated. Classification of recruits on the basis of intelligence qualifications had been successfully accomplished during The World War chiefly by means of two group and three individual examinations. Group examination Alpha and individual examinations known as the Point Scale examination and the Stanford-Binet examination were used for the classification and segregation of literate recruits arriving at camps in the draft quotas. Group examination Beta and the individual Performance Scale examination were used for illiterates. These examinations provided a large number of tests from which selections could be readily made, but the requirements for the recruit examination were such that important modifications were always necessary.

The initial selection of tests was made on the basis of previous experience in the use of psychological methods for rating and classifying men of the draft. Further selections and adaptations were made after trying out the tests in the examination of normal school children 8, 9, and 10 years old. In June, the examination was used on a group of feeble-minded men and boys at Vineland, N. J., and

<sup>1</sup> Circular No. 382, W. D., Washington, D. C., Aug. 1, 1919, Recruit Educational Centers. Note especially par. 8.

the results were compared with ratings of industrial, social, and educational capacity which were furnished by the authorities of the New Jersey Training School. The data obtained at Vineland indicated that the selection of tests was especially effective in segregating the men rated low in industrial and social efficiency.

A further trial of the examination was made at Camp Upton after a group of illiterates and foreigners had been sent there for instruction and training in the Recruit Educational Center. This group included men of various degrees of literacy and various abilities in the use of English. The commander of a company, together with his noncommissioned officers in charge of the training of recruits, prepared military ratings of the recruits according to their promise as soldiers. These ratings were made by means of a scale prepared jointly by the company commander and his noncommissioned officers. The scale consisted of a list of five men with the recruit at the top rated A, because he showed, in their combined judgment, more promise of making a good soldier than any other man in the company. The recruit with least promise of all men in the company was placed at the bottom of the scale with a rating of E. Intermediate steps in the scale were similarly established. The noncommissioned officers then took this scale and rated each of the other men in the company by comparisons with the five men of the scale. All of the work in connection with making the scale and rating the men was carefully done and supervised. Each military rating thus represents a composite judgment of the noncommissioned officers concerning the ability of a recruit in their company to become a good soldier.

Since the recruits had been in the educational center only a few weeks, it was impossible for the noncommissioned officers to be absolutely sure of a man's potential value as a soldier. The judgment of the noncommissioned officers was obviously affected by the fact that the recruits with previous military training stood out with greater promise than the men with no experience in the Army.

The results obtained from this military rating of the recruits were compared with the scores made by the same men in the recruit psychological examination. These comparisons indicated that, with a single exception, the men who showed promise of making good soldiers earned more than 20 points in the psychological examination. The men rated "E," i. e., those who in the judgment of the noncommissioned officers would never make good soldiers, were not able to score more than 17 points at the most. These facts indicated that the examination would fulfill its function of separating the mentally fit from those unfit to perform the duties required of soldiers.

On the basis of the data obtained at Vineland and Camp Upton, four tests were selected and adapted for use as the recruit psycholog-

ical examination. These tests are known as form board, cube analysis, picture completion, and spot pattern. To inform the applicant what is expected of him without the use of language there are *four demonstration problems* for each test. The demonstration problems are immediately followed by *ten test problems* and the applicant's reaction to these furnishes a basis for a numerical score. A short description of these tests follows:

### I. FORM BOARD.

The form board is probably best known to the laity as the cut-up puzzle. As used in this series, it is a modification of earlier and similar tests which are well known and widely used. The apparatus used here consists of a sheet of cardboard in which there has been cut a hole  $4\frac{1}{2}$  inches square. There are also 21 pieces of cardboard of various geometrical forms. The hole may be filled by different combinations of these pieces which fit together to make a square  $4\frac{1}{2}$  inches on a side.

The examiner demonstrates this test by picking up and indicating a combination of pieces which will fill the square and then solves the problem himself, being sure that the applicant watches and understands what is going on. He then selects another series of pieces and indicates by gestures that the applicant is to fit them into the square. If the man is unsuccessful after about a minute the examiner demonstrates this problem also. This procedure is repeated with two more preliminary problems. The subject is always given a chance to solve the problem himself, but is shown how to do it if he is unsuccessful. The test problems are presented in exactly the same way as the last three demonstration problems, but no help is given the subject if he fails.

Figure 1 shows one of the test problems with the pieces correctly placed in the square.

### II. CUBE ANALYSIS.

This is a modification of **test 2** of group examination Beta, the examination given to men of the draft who were deficient in reading and writing English. The apparatus of this test consists of 14 photographic reproductions of rows and piles of cubes as shown in figure 2. In all of the problems, except two of the demonstrations, some of the cubes are hidden from view. Not more than 10 cubes occur in any problem in order that the examinee may indicate the number of cubes by holding up fingers if he does not know the name of the number in English.

At the outset, the examiner indicates the first demonstration problem, counts the number of cubes, and shows this number on his

fingers. If the subject does not get the idea, further demonstration is made by building a model with actual cubes. In the second demonstration problem, the examiner indicates to the subject that *he* is to count the number of cubes. If he is unsuccessful this problem is also demonstrated by use of the actual cubes in building a model. Two other preliminary problems are given in the same way. The test problems are exactly like those used in the demonstration, but

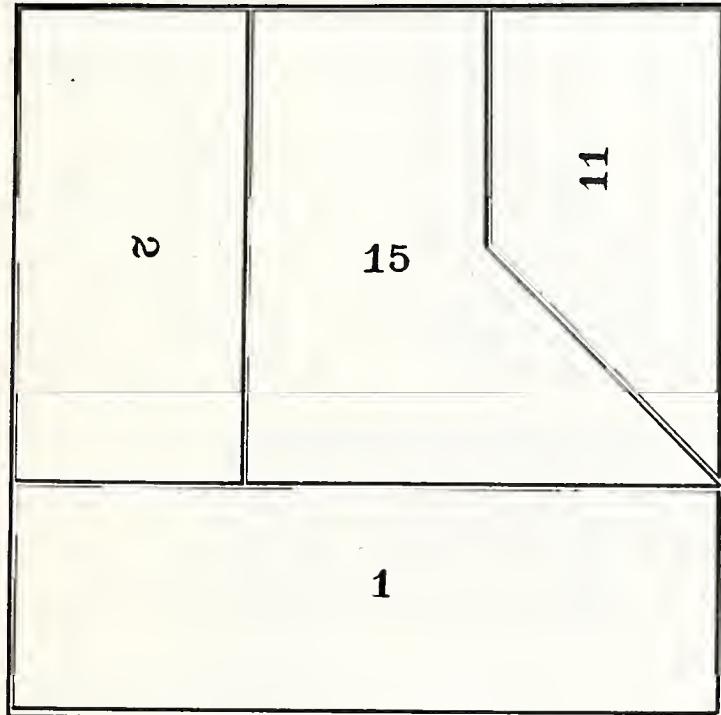


FIG. 1.—Form board, problem 5.

no help is given in case the applicant's count is incorrect. The actual cubes are never used in the test problems.

### III. PICTURE COMPLETION.

The picture completion test has also been adapted from group examination Beta and is a further modification of the missing parts test which is used in the sixth year of the Stanford-Binet examination. Three of the Stanford-Binet pictures are used together with eleven others, some of which were used in test 6 of group examination Beta

and some of which are new. As used in the recruit psychological examination, the test consists of a number of pictures from each of which some essential part is missing. There are, for instance, a watch without one of the hands and a pistol without the trigger.

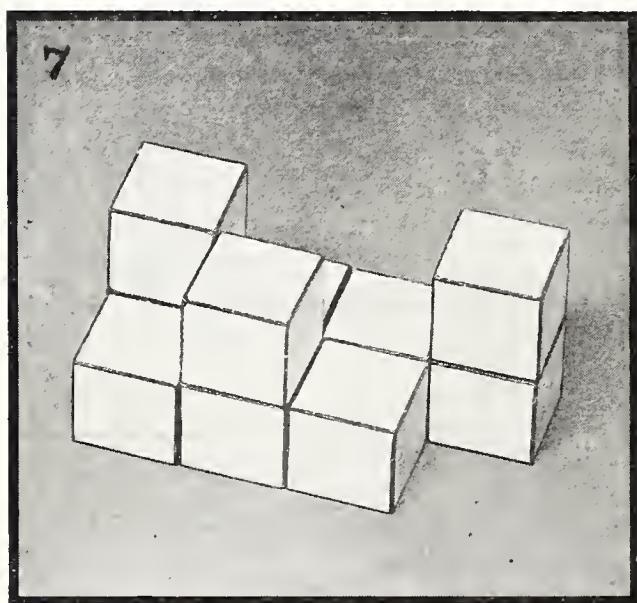
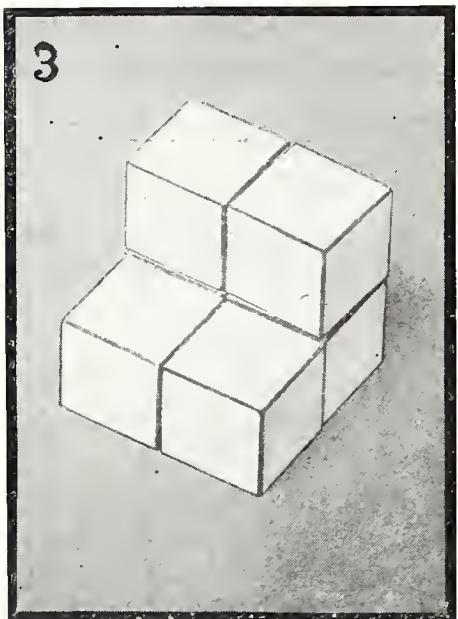


FIG. 2.—Cube analysis problems.

The picture of a hand with one finger missing is used for the first demonstration because the incompleteness of the picture is very apparent. The examiner directs the attention of the applicant to the picture and points out the missing part. He then presents a second picture for demonstration and indicates that this time the man is to show what is missing. In case the man does not succeed in a few seconds he is shown the missing part by the examiner. Two other preliminary problems are presented in the same way. The test problems are presented exactly like the preliminary problems except that no

help is given if the subject is not successful or if he indicates that a wrong part is missing.

#### IV. SPOT PATTERN.

This is a simplified form of test 8, group examination Beta. The basis of the materials used in this test is a rectangle, 6 by  $4\frac{1}{2}$  inches, which is divided into twelve  $1\frac{1}{2}$ -inch squares. Different arrangements of crosses—one or none

within a square—appear in each of 14 of the rectangular patterns. These are called the exposure patterns. There is one similar rectangle, without a cross in any square, which is called the blank chart. In conducting the test, an exposure pattern is shown temporarily to the subject, the blank chart meanwhile being com-

pletely covered up, and then removed from his view. Simultaneously with the removal of the exposure pattern the blank chart is uncovered. The problem for the subject is to point out on the blank chart each square which contained a cross in the exposure pattern.

In the first demonstration problem, an exposure pattern containing a simple combination of crosses is exposed so that both subject and examiner can see it for about 10 seconds. The exposure pattern is then concealed and the examiner points to the spaces in the blank chart where the crosses should be. A second exposure pattern is then presented for 5 seconds, after which the examiner allows the man to indicate the squares of the blank chart in which there should be crosses. If he fails to indicate the right squares the man is shown the exposure pattern again. Two more preliminary problems are presented in the same way. Figure 3 shows the exposure pattern used in one of the problems. The test problems are presented just like the preliminary problems except that a second exposure is never made and help of any kind is never given.

Throughout the four tests of this examination the subject is credited with one point for each correct solution of a test problem. The examiner uses any convenient system for keeping count of the correct solutions, but he avoids doing anything that tends to distract the attention of the candidate. Since there are 10 test problems in each of the four tests, the maximum number of points that can be earned in the examination is 40.

It is hardly possible to state on the basis of the preliminary data what score a man should make in order to be considered mentally fit for the Army. The number of cases examined in the preliminary trials of the examination are too few to furnish a reliable criterion. All of the recruits at Camp Upton whose military ratings indicate that they will succeed in the Army made scores above 20, which is half the number of possible points. Only one recruit with a score below 20 had a military rating which indicated that he had a chance of succeeding as a soldier, but this man had received military training prior to his admission to the Recruit Educational Center. Present data, therefore, indicate that the minimum score for passing the recruit psychological examination should be 20 points.

It is probable that this score will admit some applicants to the recruit depots for professional examinations who should have been eliminated at the recruiting office, yet it is deemed preferable to set the minimum score low enough at the outset to make complete professional reports available on a dependable number of the border-line cases. Should the dividing line be placed too high, the professional data on the border-line cases would not become available, since the applicants would never reach the recruit depots.

For practical reasons, it has been necessary to put this examination into use before final revision and complete standardization could

be made. Only a few recruits of the type for which the examination is prepared had arrived at the Recruit Educational Center at Camp Upton when the tests were originally selected for trial. This group was too small to furnish dependable data on the basis of which finished tests could be prepared. At the same time, there was imme-

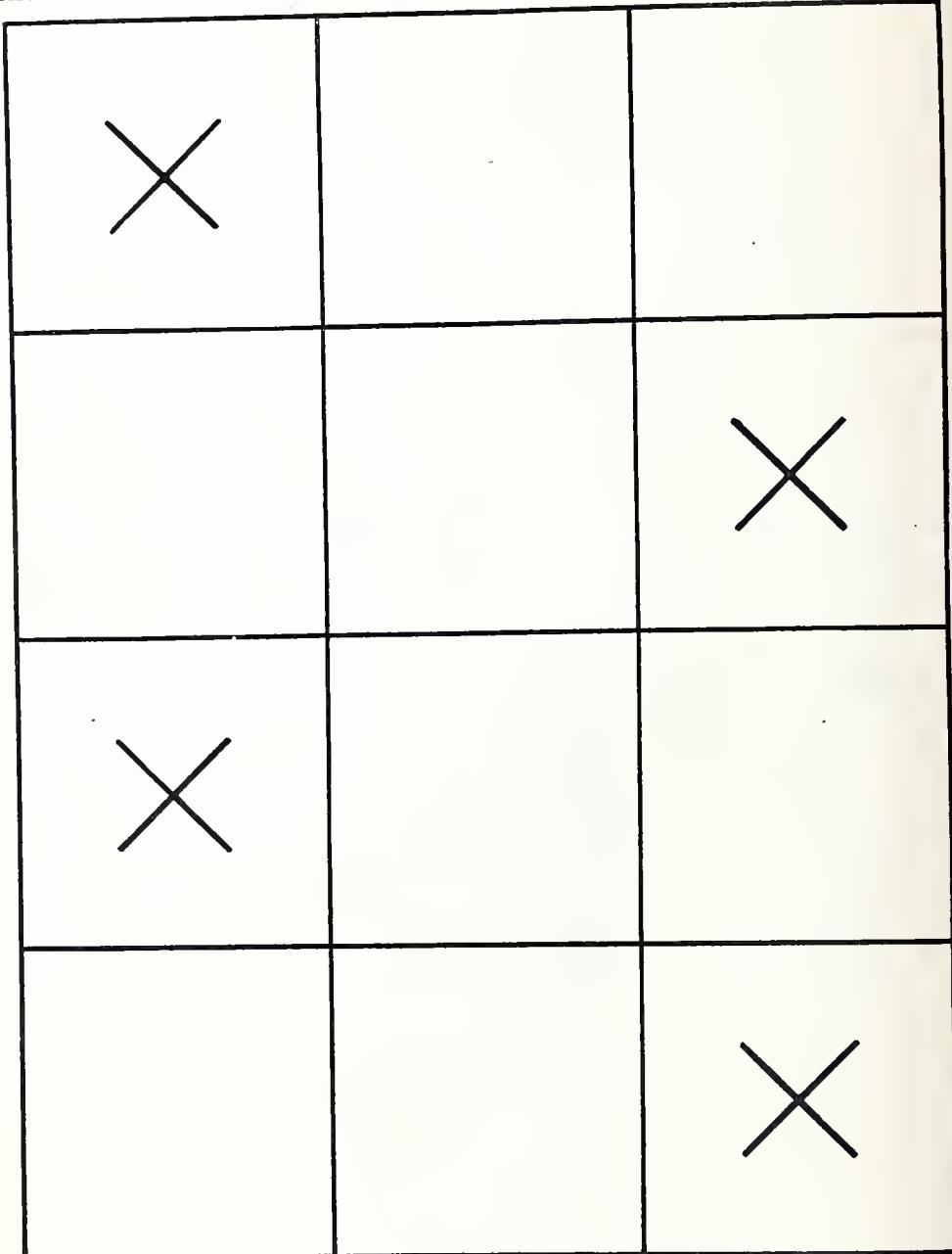


FIG. 3.—Exposure pattern for spot pattern test.

diate need for the best psychological examination that could be offered. Psychologists must follow up the use of this examination, not only to determine precisely the passing score which should be required, but also to refine and revise the tests in the light of accumulating data.